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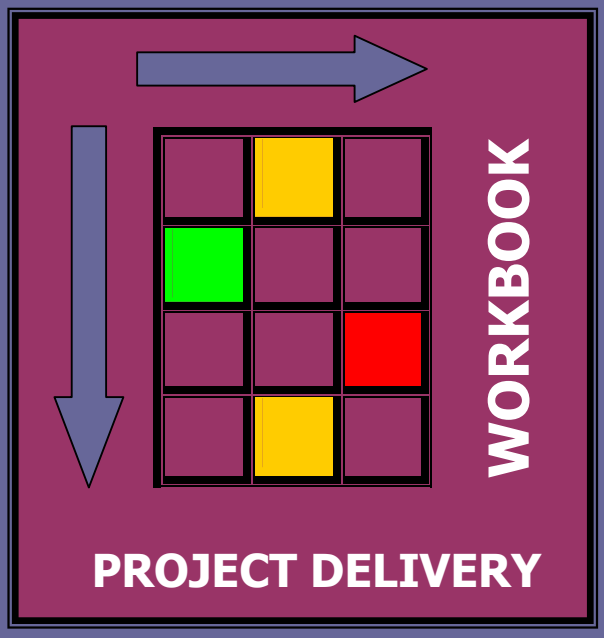
OWNER'S GUIDE



BEST PRACTICE WORKBOOK

for achieving

VALUE ALIGNMENT

in

PROJECT DELIVERY

CONCEPTUAL PROJECT DELIVERY STRATEGY WORKBOOK

PROJECT PHASE → **1: IDEA & FEASIBILITY**

VALUE ALIGNMENT ACTION → **1: AGREE PROJECT OBJECTIVES**

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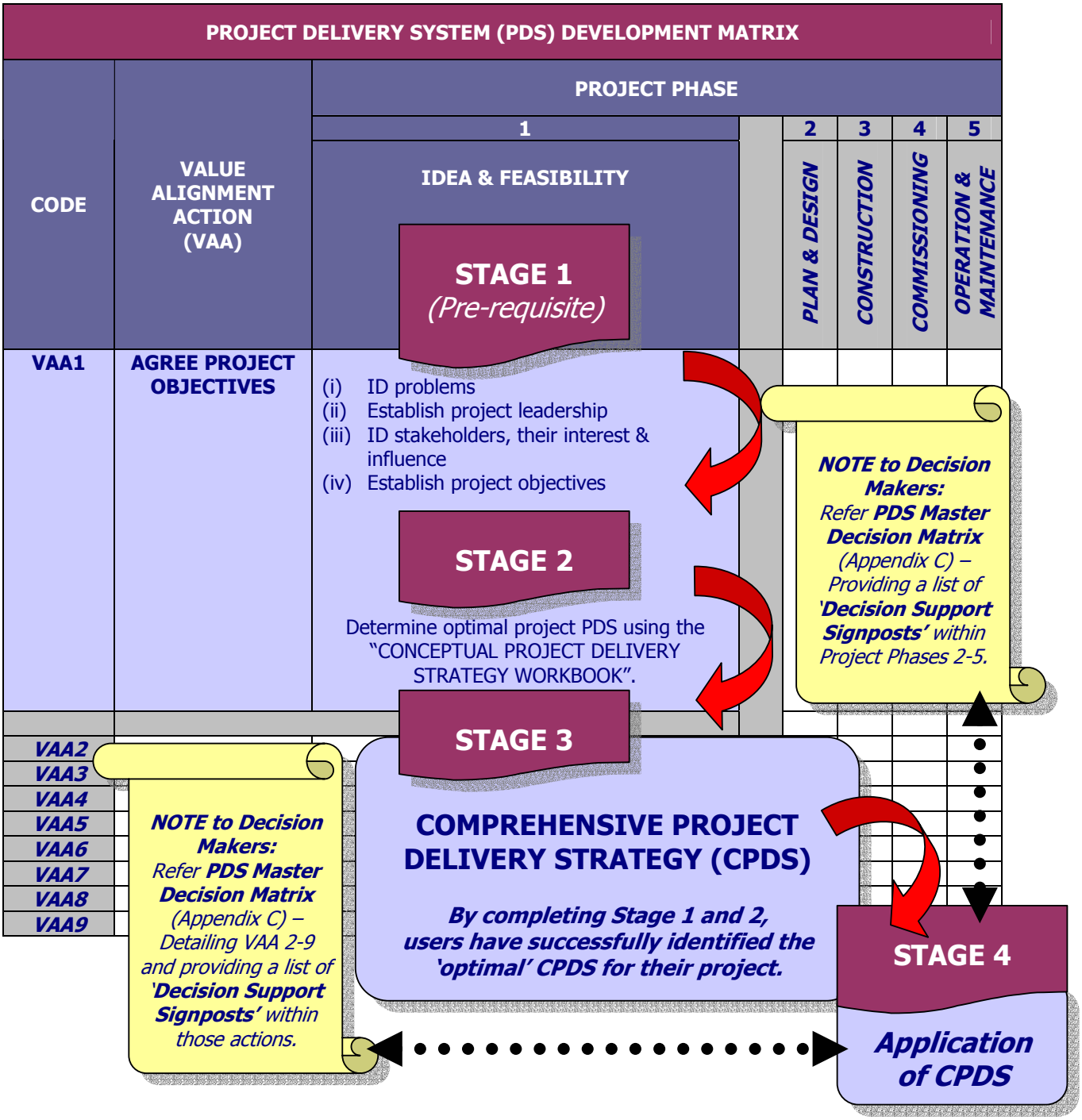

1.1. STAGE 1

(Pre-requisite)

Before using the 'Conceptual Project Delivery Strategy (CPDS) Workbook', users are to complete Stage 1 of the Project Delivery Decision Support Guide.

Phase 1 (Idea & Feasibility) / Value Alignment Action (VAA) 1 (Agree Project Objectives):

(i) Identify problems
(ii) Establish project leadership
(iii) Identify stakeholders, their interest & influence
(iv) Establish a set of priority project objectives

*(Refer Project Delivery System (PDS) Decision Matrix: **Figure 1**)*

ACTION: STAGE 1

Complete Stage 1 (i – iv) before continuing onto Stage 2

1.2. STAGE 2

(Step 1 - 4)

Determine the 'optimal' project delivery strategy using the 'Conceptual Project Delivery Strategy (PDS) Workbook'.

(Refer Project Delivery System (PDS) Decision Matrix: Figure 1)

ACTION: STAGE 2

Follow Steps 1 - 4

Step 1. Choose Project Attributes that relate to your project objectives.

Based on the set of priority project objectives determined in Stage 1 (above), users are to identify project attributes which reflect their priorities and particular combination of project attributes. Only attributes that will influence the selection of a PDS for a project are considered. There are four project attributes to choose from. The lists / tables are not random but based on stakeholder interests and project objectives, i.e.:

(i) Outcome Attributes: Cost, time and quality related priorities (Table 2).
(ii) Project Profile: Scope, complexity, scale, conditions (Table 3).
(iii) Contractual Attributes: Owner's priority procurement route variables (Table 4).
(iv) External Conditions (Table 5).

NOTE:

Each of the 42 project attributes listed in Tables 2 - 5 are categorised according to ten procurement features (Table 1), which every project delivery approach addresses in a particular way (depending on the combination of selection project attributes), allowing a comparison of alternative project delivery options:

Table1: Ten Procurement Features

#	10 PROCUREMENT FEATURES	CODE
1	Cost Control	C
2	Time Management	T
3	Quality Control	Q
4	Sequencing: extent of documentation complete before commencement of construction	S
5	Appropriate risk sharing	RA
6	Client Management/co-ordination responsibility	M
7	Tendering Process	TP
8	Level of constructor input into design	D
9	Level of team focus and commitment to non-adversarial approaches	REL
10	Variations to scope which can be tolerated	F

(Ambrose and Tucker, 2000)[1]

ACTION: STAGE 2 - STEP 1

Tick 'YES' the attributes (listed in Tables 2 – 5) that have a HIGH level of influence in realising your project's objectives.

[1] Ambrose, M.D. and Tucker, S.N. (2000) Project Procurement System Selection Model. *Journal of Construction Procurement, 6 (2) pp 121 – 134.*

Table2: Outcome Attributes

(i) OUTCOME ATTRIBUTES				
#	**PROJECT ATTRIBUTES**	**HIGH LEVEL OF INFLUENCE** *(TICK IF YES)*	**PDS FEATURES**	**CODE**
1.	Funding is limited to the design and construction costs and a small contingency – completion within original budget is critical to project success. *Available funds for capital projects are usually limited. Be certain of how much you can afford to pay. This situation requires efficient use of capital in planning and execution of projects.*	**YES** ☐	PDS facilitates cost control.	**C**
2.	Lowest possible price is required. This refers to seeking the lowest price which will achieve the desired outcomes for the owners who finance the constructed assets and other stakeholders such as users and the public. This may not be the lowest price. *The selection of contractors based on lowest price tendering can create an adversarial environment which is not in the best interests of any of the project participants.*	**YES** ☐	PDS facilitates cost control.	**C**
3.	Owner requires firm price before committing to proceed with project.	**YES** ☐	PDS to facilitate suitable extent of documentation to be completed to obtain project cost data. Refer to Sequencing Variable.	**S**
4.	Owner requires a balance between capital costs and lowest lifecycle costs.	**YES** ☐	PDS facilitates cost control.	**C**
5.	Owner only interested in capital costs. *Even if the owner is not the end user, it is worth considering spending more on the initial capital cost of a project to reduce the operating and maintenance cost throughout the life of the project. This can have market advantages for developers who are on-selling or leasing – attracting buyers or tenants faster.*	**YES** ☐	Refer Quality Variable	**Q**
	(Continue next page)			

	(Continue from previous page)			
6.	Time frame is tight. Certainty of completion date is critical to project success. *May be due to artificial pressures – check which issues are critical and which is not.*	**YES** ☐	PDS facilitates control of time increases.	**T**
7.	Time frame is not tight. Certainty of completion date is not critical to project success.	**YES** ☐	PDS should take advantage of generous time frame.	**T**
8.	Shortest possible design and construction duration is required. *Completion dates are often driven by external conditions. For example:* ▪ *For commercial reasons – getting a production process installed to get a product to market faster.* ▪ *Date set for opening game at a stadium.* ▪ *Getting a road opened (people moving sooner). Minimising disruption to existing operating facilities.*	**YES** ☐	PDS must facilitate decreasing the project time frame.	**T**
9.	Quality certainty is critical to owner's schedule (i.e. the operation cannot tolerate impacts of call backs to rectify many, or major, defects in the constructed asset). *For example,* ▪ *The facility, road/bridge/tunnel must be fully operational at opening.* ▪ *Minimise disruption to existing operating facilities.*	**YES** ☐	PDS must facilitate Quality control	**Q**
10.	Quality of workmanship and of built finishes is required by the owner to be higher than the norm for projects of this type.	**YES** ☐	PDS to facilitate quality control.	**Q**
11.	Quality which meets but does not exceed accepted standards is required.	**YES** ☐	PDS to facilitate quality control.	**Q**

Table 3: Project Profile

(ii) PROJECT PROFILE				
#	**PROJECT ATTRIBUTES**	**HIGH LEVEL OF INFLUENCE** ***(TICK IF YES)***	**PDS FEATURES**	**CODE**
12.	Project scope is well-defined at award of the design and/or construction contract. *Cautionary Note* *Ensure you know the implications of changing scope under certain contractual arrangements. It is possible to have a well-defined scope yet still to expect many detail changes or to have unfamiliar project conditions.*	**YES** ☐	PDS facilitates capitalising on well-defined scope prior to award of design or construction contracts.	**F**
13.	Project scope is not well-defined at award of the design and/or construction contract. *For example:* *Concept design obtained but no detail available*	**YES** ☐	Promote ease of incorporating changes to the project scope during detailed design and construction by seeking flexibility.	**F**
14.	Owner needs flexibility to change scope during implementation of the project. *For example:* *Projects which involve substantial alterations to an existing facility may have many unknowns in the design phase.*	**YES** ☐	Promote ease of incorporating changes to the project scope during detailed design and construction by seeking flexibility.	**F**
15.	Few changes are anticipated in the implementation of the project	**YES** ☐	PDS should capitalise on low risk environment.	**R** **A**
16.	Project design, engineering or construction is likely to be non-standard, complex, or innovative.	**YES** ☐	PDS should promote achieving project design and innovation objectives.	**Q** **D**
17.	Project design, engineering or construction is standard, or is not likely to be complex.	**YES** ☐	PDS facilitates achievement of time and cost objectives.	**T** **C**
	(Continue next page)			

	(Continue from previous page)			
18.	High level of end-user involvement is required or desired.	**YES** ☐	PDS facilitate consultation with end users and coordination of their needs.	**T M**
19.	End-user involvement is very limited	**YES** ☐	PDS capitalises on limited end-user involvement	**T C**
20.	Project scale is exceptionally large for projects of this type. Are local resources adequate? Consider work packaging	**YES** ☐	Adjust Tendering Processes accordingly	**T P**
21.	Project scale is average for projects of this type. Local resources are likely to be able to handle the project.	**YES** ☐	Tendering Processes	**T P**
22.	Conditions at project site are known *Example:* *Soil type, expected climatic factors.*	**YES** ☐	PDS facilitates appropriate risk sharing.	**R A**
23.	Conditions at project site are unknown. Beware of unpredictability of site conditions.	**YES** ☐	PDS facilitates appropriate risk sharing.	**R A**
24.	Conditions at project site present many intricate interfaces with services and immediate environment.	**YES** ☐	PDS facilitates appropriate risk sharing.	**R A**
25.	Conditions at project site are not complex.	**YES** ☐	PDS capitalises on known conditions.	**T C**
26.	The project is likely to be impacted by many regulatory/legal/Political/permit issues. e.g. cultural heritage, environmental issues, town planning permission etc.	**YES** ☐	PDS facilitates time management/co-ordination	**S T**
27.	The project is unlikely to have many regulatory issues	**YES** ☐	PDS capitalizes on known environment	**T**
	(Continue next page)			

	(Continue from previous page)			
28.	Confidentiality of details of the project is critical to project success. *For example* *For security reasons in embassies, correctional centres etc, or commercial confidentiality of process sequence in a manufacturing facility.*	**YES** ☐	PDS client co-ordination/management	**M**
29.	Existing facility must remain operational during construction phase. *Safety issues* *Co-ordination of people* *Traffic management*	**YES** ☐	PDS facilitates constructor input in design phase.	**D**

Table 4: Contractual Attributes

(iii) CONTRACTUAL ATTRIBUTES				
#	**PROJECT ATTRIBUTES**	**HIGH LEVEL OF INFLUENCE** ***(TICK IF YES)***	**PDS FEATURES**	**CODE**
30.	Owner's cash flow for the project is constrained	**YES** ☐	PDS facilitates delayed cash expenditure.	**C**
31.	Owner wants to assume minimal financial risk on the project.	**YES** ☐	PDS facilitates valid risk sharing.	**R A**
32.	Owner willing to share risks and rewards with the project team.	**YES** ☐	PDS promotes risk and reward sharing.	**R A**
33.	Timely procurement of long-lead equipment and/or materials is critical to project success	**YES** ☐	PDS promotes sequencing. Who will provide these items? Owner, sub-contractor, contractor	**T M**
34.	Owner desires to be actively involved during implementation of the project.	**YES** ☐	PDS maximises owner's role in managing design and construction.	**M**
35.	Owner desires a minimal level of involvement during implementation of the project.	**YES** ☐	PDS minimises owner's role in managing design and construction.	**M**
36.	Owner desires to substantially use own resources	**YES** ☐	PDS facilitates incorporating the owner's resources (staff, expertise, cash…)	**M**
37.	Owner desires a minimal use of own resources	**YES** ☐	PDS facilitates using contractor's resources.	**M**
38.	Owner prefers minimal number of parties to be accountable for project performance	**YES** ☐	PDS minimises the number of parties directly under contract with the owner.	**M**

Table 5: External Conditions

(iv) EXTERNAL CONDITIONS				
#	**PROJECT ATTRIBUTES**	**HIGH LEVEL OF INFLUENCE** ***(TICK IF YES)***	**PDS FEATURES**	**CODE**
39.	Market conditions are favourable e.g. construction activity is at a low level and competition to get jobs is high.	**YES** ☐	PDS takes advantage of high level of price competition in the market. Beware price cutting to 'get the job' – ensure non-price criteria are considered as well as price. Limit the number of tenderers by pre-registration.	**TP**
40.	Market conditions are "unfavourable" e.g. Construction activity is at high level, pre-qualified contractors are fully employed.	**YES** ☐	Low level of price competition in the market. Look for contractors who will provide value for money because they want to build their business on a reputation of integrity.	**TP**
41.	Project is politically/socially sensitive	**YES** ☐	Be 'open'. Encourage community support. Keep public on side. PDS encourages stakeholder management	**M**
42.	Project is not politically/socially sensitive.	**YES** ☐		**M**

Step 2. Extract highly influential attributes and list their PDS features.

NOTE:
Table 6 is an example only.

Table 6: Example 1

Refer Tables 2 - 5 *Refer Step 3*

EXAMPLE					
No	**Project Attributes**	**Code**	**PDS Features**	**Relevant Issues to Consider**	**Potential Implications / Knock-on Effect**
7	*Time frame is not tight*	*T*	*Take advantage of generous time frame*		
10	*Quality of performance is high*	*Q*	*Facilitate Quality Control*		
28	*Confidentiality*	*M*	*Facilitate client co-ordination & management*		

ACTION: STAGE 2 - STEP 2

Fill in Appendix A the Project Attributes and PDS Features you rated in Step 1 as having HIGH levels of influence in realising your project's objectives.

Step 3. ***Consider the Project Attributes you rated as highly influential in Steps 1 & 2 and:***

- *list all Relevant Issues you may need to consider in relation to those attributes;*
- *list any Potential Implications / Knock-On Effects they may have.*

(Refer PDS Checklist, Table 8)

NOTE:
Table 7 is an example only.

Table 7: Example 2

Refer Steps 1 & 2 *Refer Table 8*

EXAMPLE					
No	***Project Attributes***	***Code***	***PDS Features***	***Relevant Issues to Consider***	***Potential Implications / Knock-on Effects***
7	*Time frame is not tight*	*T*	*Take advantage of generous time frame*	*(i) Design and construction need not overlap*	*(i) -*
10	*Quality of performance is high*	*Q*	*Facilitate Quality Control*	*(ii) Non-standard work will need more time to deliver.*	*(ii) -*
28	***Confidentiality***	***M***	***Facilitate client co-ordination & management***	***(viii) Minimise numbers who see all documentation***	***(viii) TP***

Potential Implications / Knock-on Effects to Consider re Project Attribute # 28:

- *Consider work-packaging to multiple suppliers*
- *Ensure tender period is sufficient to allow bidders to price non-standard design.*
- *Advertise publicly for open tender.*
- *Limit number of tenderers to decrease costs of tendering and increase contractors' interest…etc*

ACTION: STAGE 2 - STEP 3

Using PDS Checklist (Table 8), continue filling in Appendix A, by listing the Relevant Issues and Potential Implications / Knock-On Effects pertaining to your project.

Table 8: PDS Checklist

PDS CHECKLIST			
PDS Variable	**Code**	**Relevant Issues**	***Potential Implications / Knock-on Effects***
Cost Control	**C**	**Facilitate Cost Control:** (i) Good scope definition and accurate estimates aid cost control. (ii) Encourage an environment where bidders compete on value rather than cost, by stating the maximum price you are willing to pay and seek the best value proposal which meets your requirements according to that price. (iii) Key team players who are well-known to each other may maximise potential for cost control. Certainty should increase with a co-operative, seasoned team. (iv) Cost certainty increases where a single organization is responsible for project delivery. Commercial incentives must exist. (v) Where a single organisation is responsible for project delivery, the owner relinquishes control over finished project and quality standards may be compromised. (vi) The earlier the start on site the earlier expenditure is required. Delay or minimise expenditure rate by delaying start on site until design and documentation is substantially complete. (vii) Committing to expenditure on design fees is far less expensive than committing to whole project	(i) **-** (ii) **TP** (iii) **REL** (iii) **TP** (iv) **D** (v) **Q** (vi) **S** (vii) **RA**
Time Management	**T**	**If Time Is Constrained**: (i) Arrangements which allow an early start for the construction phase are better for decreasing overall project schedule. (ii) Single source responsibility for total schedule performance leads to improved control of time. (iii) Be aware that agents not at risk, e.g Project Managers, do not have responsibility for time performance. (iv) Protracted bidding processes contribute to increasing project schedule. (v) If design or technology proposed is non-standard, contractors will need adequate time to study and understand the design before committing to a firm price.	(i) **S** (ii) **Q** (iii**) M** (iv) **TP** (v) **TP/C**

		(vi) Consider offering an early completion bonus. (vii) Regulatory authorities' compliance time frames can impact on project schedule if not managed. (viii) Promote early design and purchase of long-lead equipment or materials. Establish level of design completion at which procurement of these items may start. (ix) Work which is a standard well-understood design should be defect-free, therefore performance in other areas, particularly time, should be enhanced. **If time is not constrained**: (x) Design and construction processes need not overlap. (xi) Design and documentation can be 100% complete before construction commences. (xii) Builders can be involved early in a buildability consultancy role. (xiii) Ensure time requirements for all applications to regulatory authorities are taken into account.	(vi) **S** (vii) **S** (viii) **-** (ix) **S** (x) **-** (xi) **D** (xii) **RA** (xiii) **-**
Quality Control	**Q**	(i) **Standard work** should be defect-free, therefore performance in other areas, particularly time, should be enhanced. (ii) **Non-standard work** may require more time to deliver. ▪ Allow for time and cost implications. ▪ Allow for availability of resources. ▪ Allow for availability of expertise. Select team on capabilities and experience: **Do you have access to a** ▪ Pool of qualified designers? ▪ Pool of qualified contractors? ▪ Pool of qualified design-constructors? ▪ Pool of sub-contractors etc experienced with the type of facility being built? ▪ **If not, you may need to bring in human resources from elsewhere, or contractor can indicate ability to bring in appropriate resources.** (iii) Ensure fees for design are adequate to establish value for money solutions which meet the needs of owners and relevant stakeholders. (iv) Consider performance-based reward structure for project team members. (v) Set quality benchmarks. Consider providing performance incentives for quality which exceeds benchmarks.	(i) **T** (ii – vi) **-**

		(vi) This will require an agreed specification of standards for outstanding performance, business-as-usual performance, and poor performance. (vii) Where a single organisation is responsible for project delivery, the owner relinquishes control over finished project and quality standards may be compromised.	(vii) **C**
Sequencing: Extent of Documentation Complete Before Commencement of Construction	**S**	(i) Using a sequential process usually means the owner is not required to enter a contractual commitment to have an asset constructed until a complete design has been produced and a lump sum price for this work agreed. (ii) Reliable estimates of time and cost can usually only be obtained after substantial design completion. (iii) If time is constrained, then a sequential process may not be ideal. A process where design and construction 'overlap' in a time sense should be considered. (iv) Early start on site increases early expenditure.	(i) - (ii) **RA** (iii) **T** (iv) **-**
Appropriate Risk Sharing,	**RA**	**Technological risk:** (i) New technologies give designers considerable scope to create new designs – contractors may find it difficult to predict costs of novel construction methods. Ensure Tender process allow time for accurate estimates to be obtained. (ii) New/evolving technologies not entirely familiar to the local construction industry, may be sensitive to errors of design, manufacture, assembly, use, etc. (iii) Seek early constructor input into the design. (iv) Where specialized or proprietary technology is involved, this technology may be obtained as a package and coordinated by the contractor. (v) If using well proven technologies that are well understood by local construction industry then the project is not likely to be affected by errors of design, manufacture, assembly or use. (vi) Can be undertaken by a single firm with responsibility for design and construction. **Site Conditions:** (vii) If conditions at site are familiar and unknowns are few, look to capitalise on well-known project environment. A single design and construct approach would be appropriate.	(i) **TP** (ii) **T/Q** (iii) **D** (iv) **M** (v) **T/Q/C** (vi) **M** (vii) **M** (viii) **T/S/M**

		(viii) If conditions at site are unknown or unpredictable. Is it feasible to wait for availability of reliable information? T/S/M (ix) If the site presents unusual challenges which require innovative answers, seek an approach which allows integrated problem solving in an expedient time and budget conscious manner. (x) Reduce risks by transferring risks to contractor at a commensurate cost.	(ix) **D/T/C** (x) -
Client Management / Co-Ordination Responsibility	**M**	**Experienced clients:** (i) Experienced clients may want to be closely involved in key decisions made by their team. (ii) Owner takes on major procurement activities directly by setting up a team of project consultants. (iii) Owner's agents (Project Manager, or Construction Manager) reduce owner's role. (iv) Single-source project delivery strategies minimise owner's role. (v) Allow time and budget for user-group consultation, input and co-ordination. (vi) Ensure responsibility for gaining approvals is clear. (vii) If using an integrated approach, check how likely the solution is to gain planning approval before forming the design & construct contract. **Confidentiality:** (viii) To protect confidentiality, it works best to minimise the number of project participants who see all documents. Open tenders are not advisable in this case – seek to limit the field or negotiate with one team. (ix) PD systems based on competitive bidding would impact poorly on confidentiality because bidding requires all tenderers to see all documents. **Other:** (x) Single source approaches reduce the opportunities for using owner's resources. (xi) Deal with a single organization rather than dealing separately with designers, managers, contractors to decrease owners role.	(i - iv) - (v) **T/C** (vi – vii) - (viii) **TP** (ix) **TP** (x – xi) **-**
Tendering Process	**TP**	(i) Consider work-packaging to multiple suppliers (ii) Ensure tender period is sufficient to allow	(i – vii) **-**

		bidders to price non-standard design. (iii) Advertise publicly for open tender. (iv) Limit the number of tenderers to decrease costs of tendering and increase contractors interest. (v) Use pre-qualified contractors. (vi) Use pre-qualified consultants. (vii) Use pre-qualified key suppliers (viii) Consider implementing a selection competition.	
Level Of Constructor Input Into Design	**D**	(i) Involve contractors and/or subcontractors at the design stage to increase constructability, to collaborate on innovative solutions.	(i) -
Level of Team Focus & Commitment to Non-Adversarial Approaches	**REL**	(i) Key team members are well-known to each other	(i) -
Variations to Scope which can be Tolerated.	**F**	(i) Systems which give single organizations responsibility for delivering design and construction limit the ability of owner to request changes without claims of major impact on project. (ii) Consider serial phasing of the work to allow more time for firming up scope and taking care of changes before procurement and construction. (iii) Changes in earliest concept or design phases are less costly to co-ordinate than changes made at the construction phase. (iv) If the project can be clearly defined in terms of performance specifications, unknowns would decrease. (v) If unknowns are many, a high level of variations can be expected. (vi) Multiple suppliers are more difficult to coordinate than a single contractor when changes are needed. (vii) If few changes are expected, what is known should be reliable	(i) **RA** (ii) **T** (iii) **C** (iv) **RA** (v) - (vi) **M** (vii) **RA**

Step 4. ***Collate the Relevant Issues and Potential Implications / Knock-On Effects in accordance with the following three main strategies:***

(i) ***Sequencing of activities*** *(i.e. overlapping or sequential)*
(ii) ***Relationships between main parties*** *(i.e. separated or integrated)*
(iii) ***Arrangements for costs*** *(e.g. lump sum fee, costs + management fee, profit share etc)*

NOTE:
Stage 2 – Step 4 outcomes form the foundation of the 'Comprehensive Project Delivery Strategy' suitable to your project

ACTION: STAGE 2 - STEP 4

Referring to Table 9 and Appendix B:
(i) Collate the Relevant Issues and Potential Implications / Knock-On Effects you identified in Step 3 in accordance with the above three main strategies.
(ii) Continue onto Stage 3.

Table 9: Comparison of Organisational Strategies

Comparison Of Organisational Strategies			
Variable	**Separated System**	**Integrated System**	**Management-Led System**
Time Management	▪ No potential for early start on construction phase – not suited to fast track. ▪ Fixed completion date. But likelihood of significant time extensions for scope changes, documentation errors, breaches of contract, wet weather, industrial action. Liquidated damages clause for time overruns.	▪ Key parties are involved early. ▪ Construction can commence before documentation completed. ▪ Low likelihood of significant time extensions. ▪ Liquidated damages	▪ High certainty of contract time because of limited scope for extensions of time. ▪ Low likelihood of significant time extensions. ▪ Potential for early works packages. ▪ Potential for overlapping sequence of design, documentation and construction.
Cost Control	▪ Budget is limited to the contract costs and a small contingency ▪ Final cost – high likelihood of significant increase.	▪ Lump sum ▪ Low likelihood of significant cost increase.	▪ Bonus sharing between Owner and Contractor for actual costs of construction under GCS. ▪ Actual costs audited by Principal's cost consultant. ▪ Reimbursement of non-owner participants on the basis of management fees and actual cost of labour and materials. ▪ Formal alignment of the commercial interests of the respective participants. ▪ Performance-based reward structure.
Quality Control	▪ High quality of documentation must be achieved. ▪ Short	▪ Project Brief provided by owner (& consultants). ▪ Owner's ability to	▪ Ability for owner to control design is high. ▪ User group input sought and managed.

	Defects/Maintenance period.	control design and quality is low. ▪ Longer maintenance period transfers future costs from client to contractor.	▪ Opportunity for Incentive bonuses for design and outstanding quality, early completion, public relations ▪ Defects maintenance – 12 months.
Extent of Documentation Complete Before Construction Commences	▪ 100% complete	▪ Construction can commence before documentation completed.	▪ Design/documentation/construction overlap.
Allocation of Risks	▪ Design risks remain with owner. ▪ Construction risks transfer to contractor.	▪ Contractor warrants construction in accord with design and design is fit for purpose; warrants completion time and cost of offered solution.	▪ Managing Contractor accepts some risk and reward on cost outcomes.
Client Management/ Coordination Responsibility	▪ Owner contracts separately with a designer and a constructor. ▪ Sequential design process. Owner's consultants provide schematic design to project brief, design development and construction documentation, and co-ordinate tendering.	▪ Owner contracts with a single entity to perform both design and construction. ▪ Co-ordination responsibility lies with contractor.	▪ Principal contracts with Managing Contractor to provide input into the design, co-ordinate production of documentation and to manage the construction. ▪ Principal develops project brief and schematic design with consultants.
Tendering Process	▪ Wide range of tender options e.g. open/pre-qual ▪ Competitive tender – generally lowest price for specified work awarded the contract.	▪ Tender Process – Contractor tenders design solution and lump sum cost Generally competitive tender. ▪ Generally pre-qualification or short list of 3 maximum. ▪ Tender evaluation criteria to be sufficiently developed to assess alternative 'fit for purpose' solutions within a	▪ Two stage tender process: ▪ 1. Principal provides a Target Construction Sum. Calls competitive tenders for design fee, documentation fee, construction fee. Tenders evaluated mostly on non-price criteria. ▪ 2. Managing Contractor appointed. Principal's

		price competitive context. ▪ Two stage or select tender process recommended because level of effort required of tenderers & consultants to provide a design solution.	consultants novated to Man. Con. MC and consultants complete Design Development. MC offers a Guaranteed Construction Sum (GCS). ▪ Principal's option – if GCS is not less than Target then may seek other tenders.
Level of Constructor Input into Design	▪ Generally no input	▪ Contractor provides design by using external or 'in house' consultants ▪ Integration of design and construction (buildabilty)	▪ High buildability input – contractor coordinates design
Level of Team Focus & Non-Adversarial Relationships	▪ Potential for adversarial relationships between principal, contractor and superintendent.		▪ Fosters a team approach though the novation may force together an incompatible mix of consultants and contractor, leading to difficulties.
Tolerance of Variations to Scope.	▪ No flexibility for scope change ▪ High level of variations expected	▪ Little opportunity for scope change by owner.	▪ Potential for significant works to be **added** at competitive tender rates. (But no scope for change)

1.3. STAGE 3

Comprehensive Project Delivery Strategy

CONGRATULATIONS

By completing Stage 1 and 2 of the 'Conceptual Project Delivery Strategy (PDS) Workbook', you have successfully identified a Comprehensive Project Delivery Strategy (CPDS) for your project.

*(Refer Project Delivery System (PDS) Development Matrix: **Figure 1**)*

ACTION: STAGE 3

Continue onto Stage 4

1.4. STAGE 4

Application of Your Project's Comprehensive Project Delivery Strategy (CPDS)

To help realise your project's objectives, the Comprehensive Project Delivery Strategy (CPDS) provides you (the decision maker) the foundation on which supplementary project delivery decisions can be made – i.e.: in relation to the 5 Project Phases and 9 Value Alignment Actions.

(Refer Project Delivery System (PDS) Development Matrix, ***Figure 1****)*
&
(Refer 'Decision Support Signposts' listed in the Project Delivery System (PDS) Master Decision Matrix, ***Appendix C****)*

ACTION: STAGE 4

(i) Use the Comprehensive Project Delivery Strategy (CPDS) that you developed in Stage 2 as the foundation for making supplementary decisions in order to realise your project's objectives.

(ii) Continue referring to the Best Practice Guide – Project Phase 2-5 and Value Alignment Actions (VAA) 2-9.

(End of Conceptual Project Delivery Strategy Workbook)

2. APPENDIX A

Your Project Delivery System Development Summary

(Refer Conceptual Project Delivery Strategy Workbook: Stage 2)

Your Project Delivery System Development Summary					
No	**Project Attributes**	**Code**	**PDS Features**	**Relevant Issues to Consider**	**Potential Implications / Knock-on Effects**

3. APPENDIX B

Project Attributes Compatible with Typical PDS

PROJECT ATTRIBUTES COMPATIBLE WITH TYPICAL PDS		
Separated	**Integrated**	**Management-led**
▪ Well-defined scope ▪ No unusual time constraints ▪ Firm price required – funding is limited to contract costs and small contingency. ▪ Smaller or less complex, repetitive projects, or, ▪ Larger more complex projects where scope and risk are well defined. ▪ Well-documented ▪ Risks well understood ▪ Known site conditions ▪ Not politically/socially sensitive	▪ Principal able to define scope clearly and specify performance, technical and quality criteria. ▪ Areas where specialist D&C contractors exist. ▪ Smaller less complex projects. ▪ Not politically sensitive. ▪ Firm price required. ▪ Firm completion date required.	▪ Projects requiring early commencement on site, and faster completion times than may be achievable when using other systems. ▪ Projects where high user group input required

4. APPENDIX C

Project Delivery System (PDS) Master Matrix ('Decision Support Signposts' By Project Phase & Value Alignment Action)

(PTO)

PROJECT DELIVERY SYSTEM (PDS) MASTER DECISION MATRIX							
CODE	VALUE ALIGNMENT ACTION (VAA)	PROJECT PHASE					
		Idea & Feasibility	Link	Planning & Design	Construction	Commissioning	Operation & Maintenance
VAA1	Agree Project Objectives	• Identify problem • Proceed toward solution by: - establish project leadership - identify stakeholders and needs - establish objectives - broad-brush Delivery Strategy (Link to VAA8&9)		• Team agrees what it jointly aims to deliver • Owner authorizes team to proceed • Stakeholders positively involved • Commissioning procedures agreed	• Construction starts on site • Track progress towards achieving objectives	• Commission to achieve project objectives	• Compare outcomes in critical result areas to objectives
VAA2	Select Team Members	• Establish appropriate team structure • Select key team members		• Match project risk profile to team member capability	• Engage experienced & appropriately skilled personnel who are empowered to be pro-active		• Build on relationships developed with project team to leverage achievement of objectives or subsequent projects
VAA3	Align Team Members Interest	• Owner's priorities clear • Team members' interests aligned to achieve win-win outcomes		• Team agrees clear allocation of responsibilities • Adopt team building concepts which assist convergence of interest	• Support collaboration & eliminate adversarial behaviour between separate project team members	• Maintain collaborative working relationships	• Celebrate achievements of all involved in successful project delivery
VAA4	Ensure Financial Arrangements Support Team Working	• Develop a reward & recognition system which promotes meeting objectives • Agree commercial terms (Link to VAA6)		• Support genuine and fair incentive alignment throughout supply claim	• Support open book accounting • Pay promptly for work done	• Performance	• Allocate bonuses for exceptional performance
VAA5	Agree Project Progress	• Lay groundwork for effective communication strategy • Model non-confrontational business relationship with team		• Define information - sharing processes • Empower decision - takers	• Ensure decisions are based on up to date information through accurate, open data communication	• Document operational & maintenance procedures	
VAA6	Agree Performance Measures	• Develop performance measures based on owner objectives, and incentives based on measures (Link to VAA4)		• Team agrees to performance measures			• Measure performance of completed project against known benchmarks
VAA7	Monitor Performance Through Feedback	• Seek monitoring, reporting & feedback processes compatible with owner organisation processes		• Monitor key objectives regularly - provide, receive feedback • Mark completion of each phase with formal team meeting			• Feedback to all parties regarding actual operational performance
VAA8	Agree Design Strategy & Life Cycle Issues	• Multidisciplinary workshop to investigate project alternatives prior to any significant design work (Link to VAA1)		• Budget to allow new ideas to be prototyped	• Design strategy consistent	• Commission to achieve project objectives	• Operational performance linked to reward or penalty for design
VAA9	Agree Construction Strategy & Life Cycle Issues	• Investigate critical technologies to support project objectives (Link to VAA1)		• Agree commissioning procedures early	• Prioritise whole-of-life decisions over short term solutions	• Commission to achieve project objectives	• Operational performance with no latent defects linked to reward or penalty for construction
Deliverables	Inputs To Subsequent Phases	- Clear project goals - Scope of work to be accomplished - Core team formed - Risk identified - Pre-project planning complete		- Cohesive teamwork - Equitable risk management strategy	- Defect free asset delivered	- Asset commissioned against needs and benchmarks	- Use DST to record, update, use, disseminate, project experiences to ensure lessons are learned from success or failure.